ENDOTHELIOMA OF BONE, WITH MANY METASTASES.*

(From the Pathological Department of the Northwestern University Medical School.)

By Franz H. Brandt, '01, Chicago.

The term endothelioma, which now seems to be generally applied to tumors originating from the endothelium of both blood-vessels and lymph-vessels, including capillaries and lymph-spaces, was first used by Golgi (1) in his description of tumors, in 1874. It is on Billroth's suggestion that this term is accepted by most observers at the present time. In 1858 he reported a tumor which had a cylindrical arrangement and a hyaline structure, to which he applied the name of cylindroma. Later, through Sattler's investigation (2), he learned that these growths were a product of pathological hyperplasia of the endothelium, and that this hyaline degeneration was by no means characteristic. For that reason he preferred to call this group of tumors endotheliomata.

Whether these growths take their origin from the endothelium of blood-vessels, lymph-vessels, or lymph-spaces, is not at all decided at the present day. Observations have been made that are alleged to show the origin to be from the blood vessels, others again indicating that it is from the lymph-vessels, and others that it is from the lymph-spaces; yet it is a very complex problem to decide definitely.

Before entering into a discussion of my case, I wish to express my gratitude and thanks to Professor Futterer, my teacher, for his kindness in giving me the privilege of making this report, also for his courtesy and advice.

The case occurred in the service of Professor N. S. Davis, Jr., at the Mercy Hospital, and to him I am indebted for the history, which is as follows:

X., a janitor, aged fifty-eight, married, was admitted into Mercy Hospital on July 29, 1899.

Family History.—His father died of apoplexy; his mother of old age. One brother is living and well, while two sisters are dead; the causes of their death are unknown.

Previous History.—Has been married seventeen years; his wife

*Reprint from the New York Medical Journal.

survives him and is strong and healthy. No children resulted from the marriage, nor is there a history of miscarriages. Twelve to fifteen years ago he was a heavy drinker, but assures us that he has abstained from all intoxicants since. He has smoked to excess. Venereal history negative. He tells of having passed some blood in his urine about fifteen months ago; at times it would be in clots and he suffered great pain. The pain was very diffuse over the abdomen, but more particularly in the region of the urinary bladder.

On March 7th, while attending to a stove, he suddenly felt his right arm give way, losing all strength, and since then has been unable to make use of it. From this time on he suffered with pain in his arm, which sometimes became quite severe; there was also a swelling becoming noticeable at this time, which steadily increased in size.

Present Condition.—Patient is anaemic, and shows emaciation. His appetite is very poor. His tongue has a whitish and yellowing coating, and deep fissures are seen parallel to the long axis.

Nothing abnormal can be detected about the eyes. He has a very peculiar facial expression and complains of having very severe pain, or weakness, as he calls it, in the region of the heart. All that can be heard about the heart is a soft systolic murmur at the apex, and in the aortic and pulmonic areas. A general arteriosclerosis is observed. The lungs are entirely negative.

The liver is palpable.

On the left, in the epigastrium, a large body can be felt, presumably the kidney.

The bowels are regular.

The patient urinates without any difficulty at present.

On looking at the right arm, a tumor presents itself, situated in the place of the tuberosities of the humerus. This growth encircles the entire bone and is expansile. Palpitation reveals a systolic thrill. Later, on auscultation, a distinct bruit is heard. The tumor is rather firm in consistence, but not movable.

While the patient slept a good deal, morphine, hypodermically, had to be given, to relieve the pain.

Urinary analysis at the time of his admission showed: Specific gravity, 1.015; reaction, acid; albumin; hyaline and granular casts; flat epithelial cells. In the course of a week, under appropriate treatment, the urine showed: Specific gravity, 1.016; reaction, alkaline; albumin, a small amount; no casts.

The patient has considerable pain, and at times becomes delirious. Frequent chills are noticed.

On October 9th he died.

The post-mortem examination was held by Professor Futterer, under circumstances which did not allow him to dictate a protocol. All important parts, however, were preserved in their natural colors and will here be described.

Microscopical Description.—The primary growth involves the upper part of the humerus, reaching just below the tuberosities; it has

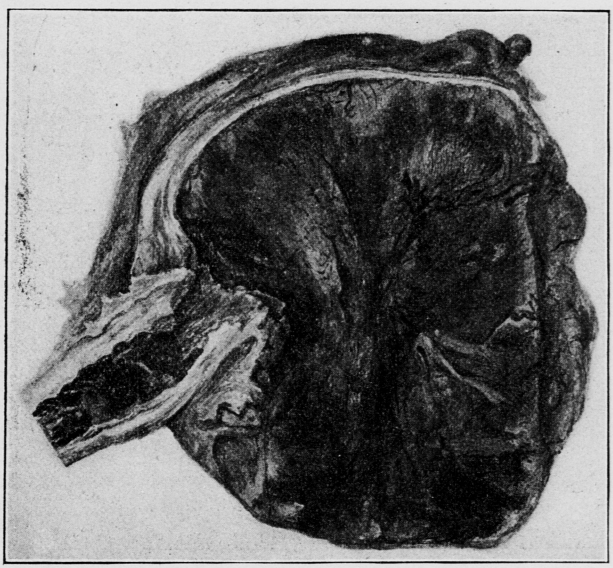

Fig. 1—Endothelioma of the Bone. Primary Tumor. Head of the Humerus.

the size of about 5½ inches longitudinally by 5 inches as the transverse diameter, assuming a nearly globular form. A distinct starting point can be seen, forming a sharp angle with the humerus. A cross-section shows a spherical outline. On closer inspection, the growth apparently starts from the marrow; about two inches below the enlargement the marrow merges into a chocolate brown color, indicating an increase of blood supply, interposed with what seem to be saepta having a lighter color. Surrounding this mass we have the bone tissue, of nearly normal color, only that in proximity with the tumor it has also the brown color. The bone here is also much wider than

at the normal part, ending in a rough indented edge. The tumor itself presents as a whole a brownish color, which shades off into lighter and darker areas. On the border in general the color is a dirty yellow, rather light, into which a darker chocolate-colored area of no sharp outline, but an appearance like the papillary layer of the skin, merges. A large number of fissures are seen in the centre, which radiate in all directions, the radiation being more marked peripherally. Two or three open spaces are seen in the central part, and with-

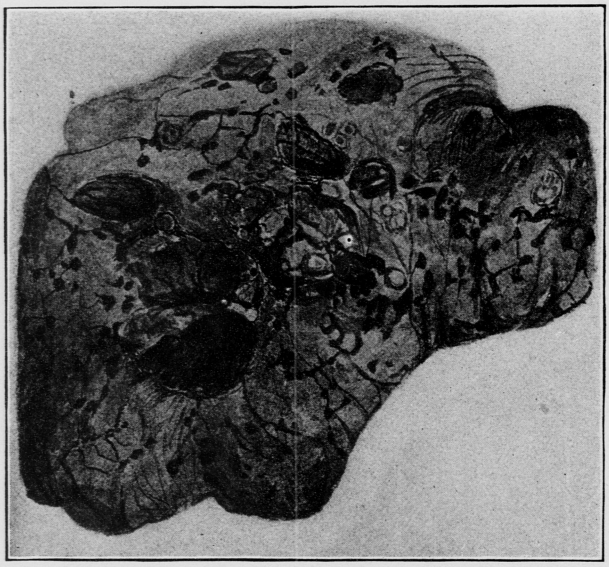

Fig. 2—Endothelioma of the Bone. Metastasis of the Pleura.

in these spaces blood is found. Again red areas are seen here and there, indicating a particularly rich blood supply; however, the whole tumor shows a richness in blood-vessels. On palpation, we find a somewhat firm consistence, yet the structure of the tumor is rather flabby. Limiting the tumor, we see a distinct capsule not attached to the growth, which is recognized to be a continuation of the periosteum at the lower end. The vessels covering the tumor present a somewhat atrophic condition, while the skin over the growth is perfectly normal.

To sum up, we see a tumor which has caused the destruction of

the head and neck of the humerus, fluctuating, with a systolic bruit, the skin, muscles, and periosteum not involved.

Metastases.—First, the pleura. Here we see a number of nodules varying in size from that of a pea to that of a walnut. These are of irregular form, more oval than round, having a creamy color, but, owing to the presence of red puncta, these present a rusty appearance. The consistence of these nodules is quite firm. The lung is very much invaded, and as a consequence it appears larger than normal. The lung was sectioned from the axillary line to the hilum. On the whole, the section shows us many metastases of all sizes, from minute spots up to those of three inches in diameter. It is well to notice that the larger masses are seen to lie more in the central part, while peripherally smaller, but many more, nodules are found. The lung tissue which is remaining gives us a variably colored picture. Here and there hyperaemic areas are seen, but more predominating are the anaemic places, only in the more lower portion of the lung very little anaemia is seen, it being of a very dark red color. Around the hilum we see increased thickness of the bronchial walls; around some of these bronchi several anthracotic glands are seen, while the larger glands of the hilum have been completely invaded by the tumor tissue. These glands are quite large and nodular, yet each mass, seemingly, is surrounded by a capsule. The color of these metastases, like those of the pleura, is entirely different from the color of the primary tumor, as already referred to; the latter is of a dark brown color and haemorrhagic, while the metastases are of a light cream color, this being observed quite universally troughout all the metastases. At the periphery many nodules are found, decreasing in size as they recede from the centre. The pleura in several places is greatly increased in thickness. This is particularly true at the apex, where a triangular area, apex down, about 2½ inches long, is seen, consisting of what appears to be white fibrous tissue. The next place where metastases occurred was in the ribs; one was invaded so much as to cause a spontaneous fracture. A spindle-shaped enlargement, mostly bulging toward the pleural cavity, is seen here, the size of which is 1½ inch by 3 inches. A cross-section of this rib gives us the oval outline in place of the bone. This tumor mass is observed to be of the same creamy color as the other metastases. Limiting this tumor tissue, we see a covering, very thin, and from as much as can be made out it is a continuation of the periosteum.

The diaphragm shows a nodule, the size of a big hazelnut, which is pedunculated. The color of this noodule is a little more haemorrhagic, but it seems to be confined to the covering.

The liver is very sparingly involved with metastases, but, owing to the dark color of the liver substance, they stand out very prominently. The nodules are not over the size of a large hazelnut, having all the characteristics of those already described. A concretion is observed in the common duct, and as a consequence we find dilation of the duct. Symptoms referable to this condition were absent.

(To be continued.)

LETTERS FROM ALUMNI.

Hullo, Tex.

Mr. L. P. Hendricks, 2431 Dearborn St., Chicago.

Dear Sir and Friend:—

Enclosed find "one plunk" to extend my subscription to the "Bulletin." I hope you will be able to continue that valuable magazine in its present spirit. Verily, it is not the bulky medical journal that contains the most meat. The Bulletin is all meat and no shell to speak of. Personally, I might state that I am doing well. My success has been all that could be desired. Yours very truly,

J. R. BROWN, '99.

Dec. 6, 1900.

H. P. Hendricks, Esq., 2421 Dearborn St.

Dear Hendricks:—

Here's a voice from the grave for you. I deny the assertion indignantly, and declare truly that I am not dead physically, mentally or professionally.

I have gained twelve or fifteen pounds and haven't felt better in a year. All that old "nervousness" has disappeared, although it took all summer to do it. I spent six weeks in the Colorado Mountains. Got a deer, and all the trout we could eat.

Since I have returned I have been very busy. My father and uncle give me their overflow, and of course I get a little on my own account. Incidentally I gathered in the diphtheria this winter, but was not very ill. I have had considerable diphtheria to attend to, and I gathered it in that way I guess.